



A joint venture of a medical team from Semmelweis University and four R&D enterprises supported by the National Research, Development and Innovation Office (NRDIO), has started research on early recognition and modern therapeutic options of ischemic heart disease and heart failure, both major causes of cardiovascular morbidity and mortality.

Budapest, Hungary - 20th May, 2017. - “Ischemic heart disease and heart failure are the most common underlying causes of death in Hungary and other countries of the EU, despite the rapidly developing pharmacological and device therapies. Improvement of these figures could primarily be achieved through significant improvement in prevention and treatment of already developed disease” said Professor Béla Merkely, the Vice-Rector for Clinical Affairs of Semmelweis University and the leader of the National Heart Program. Professor Merkely also stated that “a tightly integrated interdisciplinary (medicine, informatics and physics), translational (from basic science to epidemiology) research and development platform will be created uniting Semmelweis University and four Hungarian R&D enterprises, namely Mediso Ltd., Neumann Projekt Ltd., Pharmahungary 2000 Ltd. and TwinMed Ltd. in the National Heart Program (Nemzeti Szívprogram).”

The purpose of the NRDIO-supported National Heart Program is to develop and introduce innovative solutions and technologies that assist personalized diagnostics, prevention and treatment in daily clinical practice, thus reducing mortality due to ischemic heart disease.

As a first step of the project, core cardiovascular research facilities at Semmelweis University will be set up.

The project will substantiate cell-based diagnostic and therapeutic procedures, ‘multiomic’, personalized cardiovascular risk stratification and diagnostic methods as well as new device therapies of heart failure and identification of novel drug targets.

Total cost of the project is 3,645,702,853 HUF (12,152,342 EUR) out of which 3,299,426,997 HUF (10,998,089 EUR) is provided by the National Research, Development and Innovation Office, through the NVKP_16-1-2016-0017 project.

Semmelweis University



Heart and Vascular Center: As a university clinic Heart and Vascular Center is working for preventing and treating cardiovascular diseases. Besides a full cardiology profile (transthoracic and transesophageal echocardiography, Holter ECG, exercise stress test, cardio-CT, cardio-MR) a principal role of our clinic is to perform invasive cardiology procedures of all types. The Experimental Research Laboratory is closely connected to the clinical profile of the Heart and Vascular Center and provides ample opportunities to assess the morphological, biochemical, immunological and genetic changes which are associated with cardiovascular diseases.



Városmajori
Szív- és Érgyógyászati
Klinika

The clinical work is accompanied by experimental and clinical research. At the Heart and Vascular Center the research mainly involves ischemic heart diseases, cardiomyopathies as well as diagnosis and therapy of arrhythmias.

Department of Biophysics and Radiation Biology: Our research activity extends from molecular and cellular biophysics to nanobiotechnology, radiation biophysics and in vivo imaging. We explore biological problems that can be tackled with the theoretical and experimental arsenal of physics and biophysics. Of particular interest are the structure and dynamics of biomolecular with a focus on mechanoenzymes and elastic proteins. Our department houses a Nanobiotechnology and In Vivo Imaging Center (NIVIC) with an array of novel instrumentation for manipulating single biomolecules and for following biological processes occurring within the living organism.

Semmelweis University Department of Pharmacology and Pharmacotherapy participated in the discovery and development of several drugs marketed internationally. The cardiovascular and metabolic research group of the Department is a member of the consortium of The National Heart Program. The group focuses on the identification of cardioprotective mechanisms, and pharmacologically relevant signaling pathways. The aims of their investigations are to identify new therapeutic and diagnostic targets with the potential of further development into diagnostic and therapeutic options to ischemic heart diseases.

The Department of Genetics, Cell- and Immunobiology has outstanding research experience in the field of extracellular vesicles. Within the



Genetikai, Sejt- és Immunbiológiai Intézet
Semmelweis Egyetem, Általános Orvostudományi Kar

National Heart Program the Department will focus on i) characterization of extracellular vesicle-mediated intercellular communication within the pericardial space, ii) the biological

impact of association of lipoproteins with extracellular vesicles and iii) identification of cardiomyocyte-derived circulating extracellular vesicle biomarkers.

Enterprises

Mediso Ltd. works in the field of nuclear and molecular imaging with a profile of development, manufacturing, sales and servicing of multi-modality in-vivo imaging systems. It offers complete solutions from hardware design to quantification software, both for clinical patient care and high-level life science research. The nanoScan® family is the first-line choice for preclinical imaging including the world's first integrated preclinical SPECT/MRI and PET/MRI systems and SPECT/CT and PET/CT combinations. See www.mediso.com



Pharmahungary Group is an innovative R&D company providing preclinical and clinical R&D services and developing in-house R&D projects for out-licensing. Preclinical R&D services are focused on cardiovascular, metabolic, and renal disease models from cells to large animals and clinical R&D services include clinical trials with medical devices, ATMPs, combination products, and Investigator Initiated Trials. See www.pharmahungary.com.



Twinmed is a medical device focused company helping physicians and patients to find solutions for their unmet medical needs, closing the gap and deliver niche technologies to Hungary. To represent novel technology & high quality medical device manufacturers in Hungary Twinmed specialized supporting Cardiology, Diabetes and Neurology. See www.twinmed.hu



Neumann Projekt is a medical focused software developer and project consulting company. Besides the innovative software development we worked on projects based on nanotechnology and small molecule research for drug-tests. Our main goal is to revolutionize the clinical work with the better understanding of clinical data and help both clinicians and patients with our professional solutions in the field of cardiology and radiology.

